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ABSTRACT

The synthesis presents an initial overview of five investigations of educational dissemination and change in American schools and the implications of these studies for policy making related to federal and state dissemination programs, management of such programs, and needed research, development, and evaluation. A brief synopsis of each study was developed in a common format and level of discourse to provide these essential study facts relevant to the synthesis: the prevailing dissemination and change assumptions underlying the program; essential features of the methodology used to study the program; and the primary and secondary findings of the study. Knowledge gaps due to different emphases across studies are identified and are bridged through interpolation and inference. Conclusions drawn from the studies were that (1) some form of personal intermediary or linkage is essential to the dissemination process, and (2) a relatively comprehensive support system is needed to provide crucial materials and in-person utilization assistance. (Author/JAB)

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A SYNTHESIS OF FINDINGS ACROSS FIVE RECENT STUDIES OF EDUCATIONAL DISSEMINATION AND CHANGE

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and

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January 1978

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FOREWORD

This Occasional Paper Series is the result of a collaborative effort among the National Institute of Education, the Far West Laboratory for Educational Research and Development, and students and practitioners of educational dissemination. Each of the papers in the series will be related to the dissemination and utilization of educational information and will reflect the continuing interest and activities of both NIE and Far West Laboratory in this area of educational research and practice. In some instances, the paper will be prepared by Far West Laboratory research staff: in others, the laboratory will commission papers by practitioners and scholars in the field. Many of the papers will provide the basis for, or will be the result of, a series of dissemination conferences involving educational dissemination sponsors, dissemination project managers and staffs, and school practitioners and scholars concerned with educational improvement based on the results of educational research and development.

The major goal of the series is to define areas of agreement and disagreement within the research, development, and practice communities on those factors which are most important in supporting the process of educational improvement. Among the factors to be considered are activities of staff involved in dissemination, the organization and operation of dissemination programs, and the organization and operation of school systems. The papers also will examine basic aspects of dissemination such as the spread and exchange of information, the use of information in program planning, and the provision of training and consultation to help implement program improvements.

One of NIE's goals is to help construct support services for schools and school systems which are attempting to improve educational practice. The papers in this series are particularly related to two of the many Institute efforts directed toward this goal: the interpretation of research for practitioners and the training of linking agents.

The papers and the process used in their preparation are related to the NIE knowledge analysis and interpretation project which encourages the analysis, synthesis, and interpretation of research findings for application in educational practice. Although there is no consensus on how this process of analysis/synthesis/interpretation should be carried out, we assume that it is not solely an intellectual process but includes an emphasis on agreement among persons with different personal and organizational commitments.

In addition, we expect the papers to contribute to the conceptual base for the NIE Linkage Training Service, which is intended to collect, organize and convey information about linker training materials and human resources to those involved in linkage programs. We expect the consultation and training experience of the Linkage Training Service to keep the papers tied to reality, and we expect the ideas in the papers to help in describing and making sense of the experience of linking agents and agencies.

The papers are the continuation of an interpretation activity which began in June, 1975 with Dr. Philip Piele's review of the literature on linking functions and linker training. That review and the resulting discussions highlighted a number of problems in the available literature: (a) the important system variables which influence change and improvement in schools are not seen as related to the functions of linking agents: (b) there is little attention to the nature and quality of the information to be conveyed to practitioners; (c) linking tends to be equated with change and with adoption of innovations rather than with support to program improvement efforts; (d) the role of the school administrator in the linking process is often ignored; (e) the functions of information provision, technical assistance provision, and helping the school system build its capacity to assess and improve education are usually seen as separate and unintegrated roles; and, finally (f) there is relatively little research on the functions of the linking agent. Based on that review, it appeared that an understanding of the educational improvement process required attention to the impact of the school administrator and the school as an organization as well as to the role of the linking agent. Subsequent activities have attempted to take such a balanced perspective.

In 1977, the University Council for Education Administration published a set of papers entitled Linking Processes in Educational Improvement. That book drew upon research and experience to look more carefully at processes of educational improvement from the perspectives of the types of knowledge available, the functions of the linking agent, and the functions of the administrator. This series of papers is the result of a further effort to identify and understand the ways in which different organizations and people relate in the complex process of encouraging educational improvement.

The papers in the current Occasional Paper Series are expected to examine the most recent research and experience in order to arrive at a series of statements which can provide guidance for both managers and policy makers involved in educational dissemination. In conducting such examinations and making such statements, we are sensitive to competing needs: to simplify a very complex field, and to avoid simplification which is not a useful representation of reality. Although we do not expect these papers to provide a final statement on any of the issues addressed, we hope that they will move us a step closer to an understanding of the crucial and complex problems of supporting individuals and organizations in their efforts to improve educational practice.

Spencer A. Ward

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School Practice and Service Division
Dissemination Resources Group

National Institute of Education

Washington, D.C.
January, 1978

Preface

The task with which this report is associated was to provide an initial overview of the meaning and implications of recent studies and evaluations of major dissemination, diffusion, and change support programs in the field of elementary and secondary education. This overview was to address implications of these key studies for four areas of concern: policy changes in federal and state dissemination programs; needed research and development; designs for evaluation of dissemination programs; management and support elements needed to operate successful linkage programs. Although each of these areas of concern has been addressed, the major emphasis in the present report is on the management and support of dissemination programs or projects. Subsequent reports will treat the policy and research areas in greater depth.

We believe the primary task--an initial overview--has been accomplished and that several useful, perhaps controversial, issues and implications have been suggested. These issues and implications will be tested, refined, amplified, or discarded as additional studies are incorporated into the synthesis and as they are discussed and debated in conferences and forums which Far West Laboratory plans to sponsor for that purpose, as well as in the comments and critiques which follow the publication of any research or analysis effort.

We welcome and encourage such comments and critiques and actively solicit suggestions for the improvement of subsequent efforts and for additional critical issues which might be mapped through these studies in the expanded synthesis.

The process of developing the synthesis included consultation with scholars and practitioners in the field of dissemination as well as analysis of published documentation. Preparation of the synthesis formed a major agenda item for three conferences at Far West Laboratory, each of which had a separate focus or perspective on educational dissemination: research, policy and management, and training needs of intermediaries. These conferences were instrumental in informing both the process and the content of the synthesis. As participants in the conferences, the following individuals offered numerous helpful suggestions for the report and for subsequent studies: David Clark, David Crandall, Marian Stearns, William Paisley, Matilda Butler, Thomas Israel, Charles Mojkowski, Spencer Ward, Larry Hutchins, Philip Piele, Frank Wallace, James Gregg, Janet Buchanan, Virginia Thompson, Richard Ahrens, Ken Lindsay.

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ABSTRACT

SYNTHESIS OF FINDINGS ACROSS FIVE RECENT STUDIES IN EDUCATIONAL DISSEMINATION

John A. Emrick Susan M. Peterson

The synthesis presents an initial overview of five recent major investigations of educational dissemination and change in American schools and the implications of these studies for policy making related to federal and state dissemination programs, management of such programs, and needed research, development and evaluation. These studies were included in the synthesis:

- Sieber, S. D., Louis, K. S., and Metzger, L. The Use of Educational Knowledge: Evaluation of the Pilot State Dissemination Program (two volumes). Columbia University, Bureau of Applied Social Research, New York, N.Y., 1972 (ED 065 739; ED 065 740).

- Berman, P., McLaughlin, M. W., et al. Federal Programs Supporting Educational Change (eight volumes). Santa Monica, CA: Rand Corporation, 1975 (Volumes 1-5); 1977 (Volumes 6-8).

- Stearns, M. S., and Norwood, C. R. Evaluation of the Field Test of Project Information Packages (two volumes). Menlo Park, CA: Stanford Research Institute, 1977.

- Emrick, J. A., with Peterson, S. M., and Agarwala-Rogers, R. Evaluation of the National Diffusion Network (two volumes). Menlo Park, CA: Stanford Research Institute, 1977.

- Moore, D. R., et al. Assistance Strategies of Six Groups that Facilitate Educational Change at the School/Community Level (three volumes). Chicago, IL: Center for New Schools, 1977.

A brief synopsis of each study was developed in a common format and level of discourse to provide these essential study facts relevant to the synthesis: the prevailing dissemination and change assumptions underlying the program; essential features of the methodology used to study the program; and the primary and secondary findings of the study. Knowledge gaps due to different emphases across studies are identified and, where possible, are bridged through interpolation and inference. For purposes of this synthesis, educational change is defined as implementation of practices or procedures in response to the dissemination of new knowledge. Thus, the mere "spread" or "sharing" of information is not considered to constitute "knowledge utilization" (although they may constitute important components in the process).

Across the five studies, the following issues, conclusions, and implications were synthesized and briefly discussed.

GENERAL ISSUES

1. Information alone will not likely affect much change-oriented utilization.
2. The quality and availability of materials play a central role in supporting and maintaining dissemination effects.
3. Utilization seems to require more than easy access to information and resources.
4. Interpersonal or social influences appear to be the prime determinants of utilization.
5. Qualitative more than tactical aspects will determine the effects of a dissemination strategy. Four qualitative aspects appear to be predominant: interpersonal style, local commitment, training, and the gradual but cumulative nature of the knowledge utilization process.

KEY CONCLUSIONS

1. Some form of personal intermediary or linkage is essential to the dissemination process.
2. A relatively comprehensive yet flexible external support system is needed to provide crucial materials and in-person utilization assistance.

POLICY IMPLICATIONS

1. The wide-scale dissemination and utilization of relevant new knowledge requires considerably more time and resources than planners previously have anticipated.
2. In turn, the increased time and resources needed suggest that a requirement exists for some central process by which the relevance of new knowledge can be established, utilization priorities can be set, and the level of support for dissemination can be determined.
3. Some form or system of intermediaries or knowledge linkers should be established.

ADMINISTRATION/MANAGEMENT IMPLICATIONS

1. Effective operations seem to depend on a balance between size and organizational complexity. Small is better: organizational diversification or departmentalization seems counterproductive.
2. Requirements for recruitment, selection, and training of personnel seem to depend largely on personal referral networks, self-selection and socialization to a particular project.
3. Sophistication in materials development may represent a critical skill in effective intermediary programs.

Following these implications, thirteen guidelines for improving the effectiveness of dissemination utilization programs are suggested.

RESEARCH IMPLICATIONS

1. The most critical need is for improved knowledge of the interpersonal referral networks, subcultures, and decision-making structures characterizing all aspects of American school systems.
2. More detailed knowledge is needed about the prerequisities, appropriate training procedures, and materials requirements for developing effective intermediaries.
3. More definitive evidence is needed about the adoption/utilization process and the range and extent of its consequences on school functioning and effectiveness.

I. INTRODUCTION

Whereas the 1960s can be characterized as a period of intensive efforts to research and develop ways of improving educational practices and procedures, in the 1970s concern has broadened to include issues of how to improve the flow of knowledge and the transfer of technology to local schools. This report represents an effort to review, consolidate, and synthesize findings across a sample of significant recent investigations of educational dissemination and change in American schools.

The goal of this synthesis is to review the evidence from a selected set of recent large-scale investigations of educational change, and from these studies to derive a set of conclusions regarding the current state-of-knowledge and understanding of this phenomenon. We have assumed that our primary audience would be those involved in research on the improvement of education, those involved in designing and carrying out programs to assist in the spread of such knowledge and improvement-oriented change, and those who make policy or allocate resources to facilitate this knowledge production/utilization process.

The five studies included in this synthesis are:

- Sieber, S. D., Louis, K. S., and Metzger, L. The Use of Educational Knowledge: Evaluation of the Pilot State Dissemination Program (two volumes). Columbia University, Bureau of Applied Social Research, New York, N.Y., 1972 (ED 065 739; ED 065 740).

- Berman, P., McLaughlin, M. W., et al. Federal Programs Supporting Educational Change (eight volumes). Santa Monica, CA: Rand Corporation, 1975 (Volumes 1-5); 1977 (Volumes 6-8).

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- Moore, D. R., et al. Assistance Strategies of Six Groups that Facilitate Educational Change at the School/Community Level (three volumes). Chicago, IL: Center for New Schools, 1977.

These studies were selected on the basis of scope, relevance, methodology, and availability. That is, each of the studies was national in scope, each investigated one or more relatively distinct dissemination strategies, each involved in-depth case study components focusing on process-outcome relationships, and final reports and appendix materials were available for review and synthesis.

We have attempted to consolidate findings and implications around a common issue of interest to policymakers, program administrators, and researchers alike: What can be learned from these studies regarding processes and procedures that facilitate knowledge diffusion and utilization in schools? We recognize that several other large-scale investigations relevant to this issue are currently underway.* Still, we argue that the major findings from the collection of studies listed above provide sufficiently detailed and cohesive evidence to constitute a valid base for further policy, program, and research planning.

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*Relevant studies still in progress and thus unavailable for inclusion in this synthesis include the Evaluation of the PIP Diffusion Contractors (AIR), the Evaluation of the Bilingual PIPs (RMC), the Documentation and Technical Assistance project (CNS/CEPM), the State Capacity-Building Project evaluation (NTS), and the R&D Utilization Study (Abt).

Assumptions and Procedures

In carrying out this synthesis we have made several assumptions that have led to the organization and content of the present report:

a) Since the studies included in this synthesis are large and complex, and published reports have tended to be quite lengthy,* we have assumed that few among our audience would have had the time or the opportunity to read thoroughly the complete reports and their appendices. We found that summaries of these reports (when available) varied considerably both in level of discourse and in issue emphasis. Consequently, we have prepared a brief synopsis of each study in a common format and level of discourse to provide readers with essential study facts relevant to this synthesis.

b) The study "facts" presented in each of these synopses represent our understanding of the particular program being investigated, the prevailing "dissemination and change" assumptions underlying the program, essential features of the study methodology used to investigate (or evaluate) the program, and the primary findings developed by the study.

c) We assert that educational knowledge dissemination and utilization can be more effectively studied as a process than as an event. Yet several of the studies included in this synthesis were program evaluations not designed to be definitive process studies. Moreover, substantially different emphasis is noted across studies on "input,"

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*The two-volume Sieber report exceeds 1,200 pages; the eight-volume Rand report exceeds 1,000; the two-volume PIP final report exceeds 500 pages; the two-volume NDN report is nearly 500 pages; and the three-volume TAG report exceeds 1,000 pages.

"process," and "outcome" domains, with consequent discontinuities. In preparing the study synopses and conducting subsequent syntheses, we have attempted to identify these knowledge gaps and occasionally to bridge them through interpolation or inference. Because such "logical" evidence is unsubstantiated at present, syntheses and generalizations so based must be viewed with caution (i.e., we are, at best, still guessing).

d) Jargon and definitions are inconsistent across the studies, and occasionally even within studies. Where ambiguities exist, we make explicit our interpretation.

e) We define educational change as the implementation of practices or procedures in response to the dissemination of new knowledge. Thus, we do not consider the mere "spread" or "sharing" of information to constitute knowledge utilization (although they may constitute important components in the process). Rather, it is the conditions and "transactions" that increase the likelihood of improvement-oriented change that constitute the subject of this synthesis.

f) Our discussion of the "conditions and transactions" effecting knowledge utilization and change is meant to be neither definitive nor exhaustive. As will become clear, much remains to be investigated. Still, in our opinion, the convergence of evidence from these ostensibly disparate studies is compelling and reassuring, and this new knowledge has implications for improving future policy, programs, and research regarding educational improvement.

In the next section of this report, we present synopses of each of the five studies included in the synthesis. In the third section, we present our discussion and synthesis of findings across these studies. The fourth and final section presents a discussion of policy, program, and research implications derived from this synthesis.

II. SYNOPSES OF THE FIVE STUDIES

1. THE PILOT STATE DISSEMINATION PROJECT

Program Description

The Pilot State Dissemination Project was initiated by the Office of Education in 1970. Through this program, federal support was provided to three state education agencies over a two-year period to develop and test strategies for bridging the acknowledged gap between the research and practice sectors of the educational community. This bridging involved the use of field agents supported by an array of informational and personal resources.

The concept of the field agent was borrowed largely from the network of agricultural extension agents who made a considerable contribution to the spread of improved products and practices among farmers. The pilot program's agents were intended to interest LEA personnel in using information resources (e.g., the ERIC system), to help them define their needs and priorities, to help clients interpret the information provided, and to help them use this information to improve local programs and practices. Each of the seven agents was assigned to a specific territory--a school district, county, or region. Other components of the three state-level delivery systems included information retrieval personnel; consultants and specialists who could be called upon to provide assistance; and a project director to assume overall leadership and management of each project.

Program Assumptions

Implicit within the pilot program's strategy was the assumption that the ERIC system and other information about educational practices, products, and programs constituted a valuable resource for promoting improvement, but that this resource was having little impact on the practice of education because it was underutilized. In particular, it appeared that LEA personnel typically lacked the motivation and/or the skills and knowledge needed to take full advantage of resources like ERIC. The pilot program's basic assumption was that these obstacles could be overcome to a considerable extent through the use of personal intermediaries or linkages between the practitioners and the information base. It was expected that the agents' activities would make the information base more accessible to practitioners and thus would increase the impact of research and development upon the practice of education.

Study Methodology

Concurrent with the operation of the pilot program, USOE contracted with Columbia University's Bureau of Applied Social Research to conduct a comprehensive evaluation. The approach taken was described in the evaluation's final report as a process evaluation used to address both formative and summative goals. Field observers assigned to each project spent over a year observing the activities of the agents and retrieval personnel; their work produced a series of case studies and formed the basis of the evaluation report's discussion of project operations in each state. In addition to the extensive qualitative data provided by the field observers, several structured instruments were used to gather more quantitative information.

These included: (1) a goal checklist administered to all project staff; (2) self-report questionnaires mailed to clients; and (3) information retrieval forms.* Data from these structured instruments were used in the assessment of project impacts and in statistical analyses of process-outcome relationships.

Key Findings

The Sieber evaluation concluded that the agents were successful in reaching client groups traditionally unlikely to seek information and assistance from outside sources. During a five-month period in the program's second year, requests were received from an average of 8.6 percent of the educational personnel in the districts served by agents; during this same period, only about .005 percent of the LEA personnel who had access to the same information resources without the services of a field agent requested information. Agents were particularly successful in stimulating requests from elementary school teachers.

Sieber et al. also concluded that field agents' clients found information and assistance more valuable than did clients not served by agents and were more likely to make actual use of the new ideas and knowledge. However, Sieber's Utilization Index combined reports of use (including planning) with reports of benefits. Utilization scores were derived strictly

*Questionnaires were mailed to all clients served by field agents during a five-month period in the second year of project operations. These questionnaires covered such topics as the type of information and assistance received, the client's assessment of the information and services, and his/her expected future use of the system. For each such request, an information retrieval form was also completed, indicating the type of search conducted (computer, manual, or both) and the nature of materials provided. A sample of educators in nontarget areas (i.e., LEAs not served by field agents) was surveyed to ascertain their awareness and use of the information services.

from self-report data, and the items used to construct the index were characterized by high nonresponse rates. As such, utilization is not equivalent to implementation or change in practices. The real impact of agents, in terms of change or improvement in local programs and practices, is therefore uncertain.

Several features of the field agent role were cited as probable causes for the agents' success in gaining acceptance for themselves and the services they offered. As generalists, they could present themselves as ready and willing to serve a wide range of interests and priorities identified by the clients themselves. Formally, as state employees, the agents were "outsiders" to the school systems they were expected to influence. However, all the agents had recent experience as teachers or administrators in the regions they served, which made them familiar with local norms and customs and probably added to their credibility as sources of assistance to school people. Finally, the agents' lack of power to mandate change was cited as a factor contributing to their success. The evaluators had anticipated that lack of power would pose major problems in the agents' efforts to gain access to potential clients and to promote change. However, they concluded that the combination of the three factors cited above minimized the potential for competition between the agents and local authority figures or specialists and thus promoted the development of collegial relationships between agents and their clients. Further, although agents lacked formal power, they did make informal use of existing power structures to gain access to school personnel and to help remove organizational obstacles to change.

Gaining access to potential clients proved to be more difficult for the agents than had been expected. While publicity campaigns involving letters and brochures were found useful for purposes of announcing the services, personal contact, at multiple levels within the target systems, was necessary to create interest. An initial call upon the superintendent was needed to secure administrative concurrence for the agent's presence, and subsequent informal contacts with individuals or small groups were essential to stimulating interest and requests for assistance.

The most difficult issue for the agents was their level of involvement and directiveness in local activities. This issue arose in two spheres: identification and diagnosis of client needs, and provision of follow-up assistance to supplement written information (e.g., reports obtained through searches of ERIC or CIJE) and facilitate local change efforts. In both cases, agents typically adopted a low-profile posture. Thus, although agents developed some needs assessment and diagnostic skills, they tended not to engage in extensive diagnosis except when clients asked for such help.

The level and nature of follow-up assistance and agent involvement in local implementation efforts was especially problematic. Although the need for follow-up varied according to several considerations, Sieber et al. concluded that some follow-up contact, initiated by the agent, was almost always necessary to sustain client interest and effort. The evaluators discovered a general tendency toward underinvolvement of field agents in follow-up, particularly in connection with local efforts to implement new practices.

This underinvolvement, along with most of the other operational problems discussed by Sieber et al., was attributed to two major factors: lack of a well-developed model to guide establishment and operation of the

projects; and organizational dispersion of each project. The geographic separation of the field staff from the project directors and retrieval staff resulted in communication problems and, especially during the early months, caused a general sense of isolation among the field agents, who received little substantive guidance or moral support. Agents developed their own views of project goals and defined their own roles vis-a-vis the clients and the centralized project staff. These views often differed markedly from those held by project management,* with negative consequences in both operational and human costs. Operations were highly inefficient in the early months, and a sense of unity or team work was slow to develop. Sieber et al. concluded that in newly established, geographically dispersed organizations, special attention is needed to providing channels for two-way communication and to developing an atmosphere of camaraderie and mutual support.

2. FEDERAL PROGRAMS SUPPORTING EDUCATIONAL CHANGE

Program Description

In July 1973, the U.S. Office of Education contracted with the Rand Corporation to undertake a multiyear study of several federally supported programs designed to promote improvement-oriented change in schools. The four programs studied were ESEA, Title III; ESEA, Title VII; Vocational

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*Sieber et al. suggest, for example, that the agents' low profile and tendency toward underinvolvement in local activities was due in large part to the prevailing view among agents that the program emphasized dissemination objectives rather than promotion of actual change. It appears that agents were anxious to reach as many clients as possible, which precluded intensive needs assessment and follow-up assistance.

Education, 1968 Amendments, Part D; and Right-to-Read. The study was intended to provide insight into how the process of innovation operates and into what factors influence the process and its outcomes.

Of the four programs studied, ESEA Title III was the largest in terms of funding (approximately $150 million annually during the period studied) and the broadest in scope. Its intention was to introduce new practices and projects to schools and districts on a demonstration basis. The competition for three-year grants resulted in support for a wide array of locally developed projects. The other three programs were more specific in the range of subject matter addressed and in criteria for funding. Right-to-Read ($12 million annually) was designed to create a national priority on reading, particularly among disadvantaged students; the Rand study examined Right-to-Read demonstration projects required to follow a prescribed planning and management strategy. The focus of Vocational Education, Part D ($16 million per year) was on enhancing career awareness and readiness. Finally, ESEA Title VII ($45-$85 million per year) provided support for bilingual education projects for children of limited English-speaking ability.

Program Assumptions

The four programs shared the goal of stimulating the development and spread of educational innovations within local settings. They also shared the assumption that one means of promoting improvement-oriented change in schools was through provision of additional resources, in the form of targeted federal funds, to school systems. While such grants were small compared to overall district budgets, it was assumed that they would allow LEAs to install new projects and practices that they probably could not

undertake without special funds. It was further assumed that such external support would be needed only for a limited period, while LEA personnel put new practices and/or materials into operation and evaluated their effectiveness. After this limited period (e.g., three years in the case of Title III), it was expected that most LEAs would discontinue projects found ineffective and continue successful ones with district funds.

Although three of the four programs were identified with particular subject areas and/or target groups, none was intended to promote the diffusion and adoption of specific instructional practices or curriculum materials. Development of improved approaches for teaching reading, enhancing career awareness, or meeting the needs of children with limited skills in English was left largely to the LEA personnel. Federal involvement was for the most part restricted to the provision of grants to LEAs (portions of the Title III and Vocational Education funds went through state education agencies, but the grants were ultimately targeted for LEA use) and general guidelines. As such, the Rand study provided an opportunity to examine the efficacy of federal "seed money" as a strategy for promoting change.

Study Methodology

The Rand study of the four seed money programs was conducted in two phases, with Phase I examining local projects during their last or next to last year of federal support and focusing on initiation and implementation issues. Phase II examined the fate of the projects following the withdrawal of federal funds. Phase I data collection included a (personal interview) survey of teachers, principals, and administrators at 293 sites and interview/observation studies of 29 sites drawn from the survey sample. The in-depth studies formed the basis of Rand's description of the process

of innovation (see Volume III). Regression analyses of the survey data were used to assess implementation outcomes and to identify factors influencing variations in these outcomes (see Volume II). In Phase II, the study was focused on Title III and Title VII projects; a sample of each was selected for return visits.

Key Findings

The Rand study concluded that the federal seed money strategy produced a major impact in terms of stimulating LEAs to undertake projects that were consistent with program guidelines but that would have been difficult to attempt without special funding. Initiation of new projects did not, however, guarantee successful implementation, and implementation success did not by itself assure long-term continuation. Phase I research indicated that what distinguished successful from unsuccessful implementation was not differences across the emphases, policies, funding levels, or management strategies of the four federal programs. Instead a host of local considerations profoundly influenced processes and outcomes; primary among these factors were:

(1) the LEA's motivation for initiation;

(2) the nature and scope of change attempted;

(3) the implementation strategy taken; and

(4) the level of institutional support provided.

Rand found two essentially different motivations for initiation in the sites studied: opportunism and problem-solving. Basically, in the problem-solving model, projects were initiated in response to locally recognized, high-priority needs for which an apparently feasible and acceptable solution was available. In other districts, however, the

"needs" were defined primarily in response to the guidelines that accompanied the federal dollars. In these "opportunistic" districts, local recognition of the stated needs and commitment to the projects was said by Rand to be low or nonexistent. The importance of initial motivation became evident in subsequent stages.* When district-level recognition of need and commitment to project goals were not present during initiation, they generally failed to emerge later. As a result, projects initiated for opportunistic reasons produced little or no impact in terms of changed instructional behaviors and practices, and they almost never survived the withdrawal of federal support.

While Rand found little apparent connection between outcomes and variations in treatment or resource level (size of grant), the scope of change proposed was found to be important. Berman (1977) has phrased the relationship succinctly, as "Little ventured, nothing gained." Projects that did not require significant change in teachers' behavior induced little change. Projects that did attempt to influence teacher behaviors (rather than, say, merely to provide some new materials) were viewed by teachers as opportunities for professional growth, and this perception operated as a powerful incentive for the extra effort and change required of the teachers. Structural complexity, on the other hand, introduced major problems of coordination that reduced the likelihood of success. Gradual approaches that began with a small number of classrooms were more successful

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*It should be remembered that Phase I data collection was carried out near the end of the federal support period. Hence, initial motivation could be addressed only retrospectively. It is possible that reports of early endorsement or opposition to the projects were influenced by the level of success and acceptance they subsequently attained. The Rand team attempted to minimize the effect of such bias by obtaining multiple perspectives on how projects were initiated.

than ones attempting to introduce change throughout an entire district simultanecusly.

Implementation processes and strategies were a major focus of the study. One of Rand's key distinctions was between a project's instructional strategy and its implementation strategy--the means used to bring about change. Two projects designed to use virtually the same instructional strategy might be characterized by widely differing implementation strategies and vice versa. Implementation strategy basically pertains to means used by local project leaders to guide and support the implementation process. In general, the more successfully implemented projects were characterized by:

- staff training focused on practical aspects of project operations.
- high levels of support activities for participants (e.g., visits to demonstration classrooms; observation of implementation efforts and feedback from project leaders or consultants).
- frequent meetings of project staff.
- staff involvement in decisions affecting project operations.
- development of materials by local participants.
- inclusion of highly motivated staff who volunteered to participate and, in some cases, were selected by project leaders as "most likely to succeed."
- targeting of change efforts to elementary schools.
- involvement of a "critical mass" of participants.

In Phase I, Rand concluded that a climate receptive to the innovation being attempted was critical; few projects were able to succeed (or even survive) in a hostile or indifferent environment. Administrative support, at both the district and school levels, was one important element of the institutional climate. Endorsement of the project by the

district office was frequently sufficient, but a more active type of support on the part of principals was generally necessary for success.

Effective local leadership was another important component of the organizational climate. Phase I research pointed to the critical need for local leaders with skills in the content area(s) covered by the innovations and with the organizational and interpersonal skills needed to work well with teachers, principals, and district-level personnel. Phase II confirmed the importance of such skills.

The focus of Phase II research was on continuation of the projects after withdrawal of federal support. Here Rand found little evidence to support the assumptions underlying the seed money strategy. First, decisions regarding continuation were <u>not</u> based primarily on evaluation results. Second, few projects were continued intact. Most of those that were continued underwent further modification to fit within district budgets. Third, a district-level decision to continue a project did not guarantee that the project would become fully institutionalized and survive over the long term.

Rand characterized continuation as occurring at two levels: the classroom and the district. The factors influencing the two levels were different, and each could (and often did) occur independent of the other. Teachers were most likely to continue using techniques and materials that they felt comfortable with and that they believed had contributed in some significant way to their professional growth. District-level decisions were dependent on a number of considerations, including the apparent success of implementation efforts, centrality of the project in terms of district priorities, staff and community acceptance of the project, and, most importantly, support from principals of participating schools.

What appeared necessary for full institutionalization (defined by Rand as integration of project-related change into the school system as a standard or characteristic feature of district operations) was a combination of continuation at the classroom level with provision at the district level of the support systems needed to sustain (and possibly expand) the changes brought about by the project. Unfortunately, instances of full institutionalization were very few in number, occurring only in those infrequent cases where local leadership had recognized from the outset the full implications of "soft" money and had begun planning for continuation almost immediately. For most of the projects Rand classified as "continued," such planning, when it occurred, began late in the implementation stage. Projects were continued as "special projects" on a temporary basis (often with some reduction in scope), and their value to the district had to be reestablished with each new budget cycle. Thus, the future of the projects remained highly uncertain.

3. EVALUATION OF THE FIELD TEST OF PROJECT INFORMATION PACKAGES

Program Description

In 1974, USOE awarded grants under ESEA, Title III, Section 306 to 19 LEAs to participate in a two-year field test of six Project Information Packages (PIPs). These packages were designed to provide LEA personnel with the information needed to install and operate effective approaches to compensatory education in reading and mathematics. Each package was based on a project developed in a local school setting (in five cases with Title I funding) and validated by the Education Division's Joint Dissemination Review Panel. USOE had earlier sponsored the search for these exemplary projects and the project packaging effort.

Program Assumptions

The concepts and assumptions underlying this dissemination-via-packaged-information effort are described in the final report on the SRI evaluation of the field test. The fundamental concepts are:

- Program replication. It was assumed that the "essential features" of a successful program (i.e., those that made it successful) can be reproduced in new sites. Implementation of these essential features will lead to replication of project impacts on student participants.

- Autonomous package. The essential features of the exemplary projects can be identified and communicated via packaged information. LEA adopters will need little or no additional assistance to implement the projects.

Additional assumptions underlying the PIP effort included the following:

- LEAs are motivated to adopt PIPs because they desire to discover and use effective programs.

- LEAs are capable of assessing their needs and of selecting a PIP that is suitable to local needs and resources.

- Capable project leaders and staff are present within LEAs and will be attracted to the PIPs. Further, these staff will make a serious attempt to implement the packaged specifications.

- The lengthy "trial-and-error" start-up and implementation processes that occurred at the originating sites can be reduced to as few as six months via packaged information.

- The expenses and uncertainties associated with alternative dissemination programs (e.g., those that rely heavily on in-person technical assistance) can be reduced via PIPs. The resulting increase in the likelihood of effecting improvement-oriented change will offset the considerable costs of PIP development.

Study Methodology

USOE contracted with SRI to undertake a comprehensive evaluation of the field test. The focus of the first-year evaluation was on the extent to which personnel in the 19 participating LEAs were willing and able to implement the packaged guidelines. (One result of the first-year evaluation was a major revision and reorganization of the packages to

reduce ambiguities and fill gaps in the information.) The major focus of the second year was on determining effects on students. Evaluation methodology during both years included repeated visits to the field test sites to interview local personnel and observe project operations. Self-report questionnaires were administered to project staff and a sample of school and district personnel to assess their attitudes, opinions, and impressions of the projects. Student impacts were assessed via standardized achievement tests and affective measures administered in the fall and spring of the second year.*

Key Findings

The first-year evaluation indicated that most field test site personnel were willing and able (at least under the somewhat artificial conditions imposed by the field test)** to implement the packaged guidelines and to recreate the management features of the original projects fairly well at a mechanical level. Implementations became stronger and more internally consistent in the second year as project staff gained confidence and experience. Interview and questionnaire data showed marked enthusiasm for the new projects on the part of project staff and considerable pride in their accomplishments. Thus, although major revision of the original packages was deemed necessary, they were judged effective as devices for communicating important features of project management.

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*Samples of students were tested in the first year.

**Field test conditions included both the carrot and the stick. Specifically, LEAs were given fairly substantial grants for the explicit purpose of implementing a PIP; USOE monitoring emphasized fidelity to packaged specifications; and an external evaluator watched the implementation process closely.

With regard to re-creation of the originating sites' instructional programs and impacts on student achievement test scores, the evidence was less positive. Five of the six packages did not prescribe specific curricula; as a result, the instructional programs implemented at the field test sites tended to differ both among sites or classrooms using the same package and between field test sites and originating sites. Further, the results of the second-year evaluation of student impacts indicated that the hoped-for achievement gains were not generally realized.*

Given the packages' emphasis on project management, and their lack of detail concerning the instructional programs (curriculum, methods, and the like), the evaluators suggested that instructional programs at the adopting sites should not be expected to duplicate the originals. The packages facilitated duplication of conditions for effective instruction (pupil/teacher ratios, time set aside for intensive instruction in basic skills, availability of extensive equipment and materials, etc.) but not replication of the specifics of pupil/teacher interactions and the instructional process. The evaluators concluded that it was probably not reasonable to expect management considerations to exert a strong and direct influence on pupil achievement.

Although the conditions of the field test did not permit an adequate test of all the assumptions listed above, the field test evaluation did shed serious doubt on the assumption that LEAs would be highly motivated to adopt PIPs in order to replace their own, less effective, compensatory

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*Most student participants attained "normally expected" growth (i.e., their percentile ranks did not drop from fall to spring on the Metropolitan Achievement Test). However, most did not attain the more stringent target criterion of one-third standard deviation above the equal percentile-growth expectation that had been established at the outset of the field test.

education projects. LEAs participating in the field test used the PIP projects in addition to (and not instead of) ongoing programs; often the new projects were used to reach schools or students not previously involved in compensatory programs because of limited resources.

The evaluators recommended that the concept of a self-contained, stand-alone package be given serious reconsideration. The PIPs were found to be useful communication devices for certain "pullout" programs that call for highly specified resources and easily understood procedures. To the extent that innovations targeted for dissemination required significant organizational or behavioral change on the part of users, however, the PIPs were less effective. The one program that called for use of a combination of highly innovative methods (open classrooms, learning contracts, gaming and simulation) encountered major problems at each site where it was used. Further, it was concluded that the PIPs cannot disseminate themselves; an intermediary is needed to publicize them to LEAs and to generate interest in using a PIP among LEA personnel. Finally, the technical details communicated via the packages were found to be only one element of the support LEA personnel needed in attempting to install a new program. Some personal contact between the new adopters and experienced project staff appeared necessary--in part to convey programmatic information, but equally importantly to enhance the believability of the packaged materials and to provide moral support and encouragement.

4. EVALUATION OF THE NATIONAL DIFFUSION NETWORK

Under contract to USOE, SRI conducted a two-year nationwide study of the National Diffusion Network (NDN), an innovative federally sponsored approach to spreading exemplary educational programs and practices to elementary and secondary schools throughout the nation.

Program Description and Assumptions

The NDN approach differs in several substantial ways from more conventional approaches to educational dissemination and change. First, the goal or mission of the NDN is to effect widespread adoptions of validated innovations, as opposed to simply disseminating information regarding these programs. The targets of the approach are school systems--both public and nonpublic--referred to as adopters.

Second, the NDN makes use of two categories of change agents--Developers and Facilitators--to accomplish this mission. The first category (Developer) refers to the change agent who is associated with the development, demonstration, and provision of implementation assistance for an innovation approved for dissemination by the Joint Dissemination Review Panel (JDRP). A given Developer in the NDN may be a single individual or a staff of several individuals. The defining characteristic is that Developers are associated with specific innovations.

Facilitator, by way of contrast, is the term applied to change agents associated with specific regions, often entire states. Facilitators provide the link between Developers (with their innovations) and local schools, which are the targets of the system. Facilitators do not function as program or technical experts, but rather as process specialists. They act to surface potential adopters, to establish organizational interface between Developers

and potential adopters, and to facilitate the adoption process. Facilitators, then, represent a new feature over conventional diffusion systems.

A third distinctive characteristic of the NDN is its emphasis on practitioner-developed yet externally validated innovations. NDN innovations typically do not emerge directly from R&D systems (although they may), and the Developer change agent is nearly always the innovator or project originator.

The innovations in the NDN pool are actual operating programs, developed and still in use in public school systems. Included is a broad range of program types, usually with multiple offerings in a given content area. The programs range from those that serve preschoolers to those that serve twelfth graders; several programs also include parent involvement components. The innovations range in complexity from instructional units that can be added to a classroom's ongoing curriculum to organizational arrangements that may affect entire schools or school systems. The majority of the programs include instructional components, emphasizing curriculum content, instructional methods, or both. As such, the innovations are aimed primarily at the teaching staff within the schools. Although a majority focus on basic skills, such specialized areas as environmental studies, physical education, industrial arts, social studies, and the arts are represented. The important point is that NDN innovations tend to be developed by and for practitioners, with the added feature that they have been validated by a high-level control mechanism.

The validation mechanism for the identification of innovations to be included in the NDN is the JDRP. Basically, the JDRP reviews programs and products targeted for federally supported dissemination to ensure that claims of effectiveness are backed by sound evidence. The JDRP is not a formal

component of the NDN. However, only programs approved by the JDRP are eligible to receive Developer/Demonstrator grants. Ultimately, then, the JDRP functions as a clearinghouse, a legitimizing agency, an indicator of federal educational priorities, a quality control mechanism, and a target criterion for innovators. The full impact of the JDRP on the formulation and ultimate effectiveness of the NDN is not known, but it is believed to be a necessary element of the approach. It is the apex or keystone of the strategy: the "Good Housekeeping" or "Underwriters Laboratory" seal of approval.

Another distinctive feature of the NDN is the use of person-intensive change tactics. Whereas most dissemination systems rely on information technology to respond to user needs, the NDN approach relies very heavily on interpersonal tactics. Indeed, the investigators' central thesis was that interpersonal or person-intensive components of the NDN constitute its most distinctive feature in terms of its overall effectiveness in producing directed change.

Study Methodology

The four major goals of the SRI study of the NDN were:

(1) To provide a comprehensive description of the evolution, organization, objectives, and operating procedures of the NDN.

(2) To describe diffusion- and adoption-related processes used by NDN agents and provide insight into how these processes influence adoptions.

(3) To evaluate the organizational effectiveness of the NDN and supporting components.

(4) To conduct policy analyses on evaluation findings and advance specific recommendations regarding the continuation of the NDN.

The evaluation model used to address these questions combined the case study approach with process-outcome analysis. Baseline information was gathered by means of a questionnaire survey of 1974-75 NDN participants (including a sample of 1,000 adopting school districts) in the Fall of 1975, and a more comprehensive survey was administered to both new and continuing participants (150 change agents, 1,500 adopters) in the Spring of 1976. A multi-stage sample of continuing participants (16 Developers, 16 Facilitators, 35 Adopters) was identified for more thorough study, which involved site visits, interviews, observations, file reviews, and a more extensive LEA staff survey (including central administrators, principals, and classroom teachers). Variables developed from survey data were analyzed by means of multiple linear regression techniques to establish relationships of processes and events (NDN tactics, innovation properties, and LEA characteristics) to outcome patterns. Results were interpreted with respect to how they corroborated or further elucidated descriptions of the NDN processes identified through observation, interview, and file review procedures.

Key Findings

The investigators describe the NDN diffusion/adoption process in terms of three continuous stages: initiation, implementation, and assimilation. The sequence of typical diffusion/adoption activities occurring in each stage is summarized in Table 1. Briefly, the initiation stage includes those activities intended to inform LEAs of the innovations, to build local interest in adoption of one or more programs, and to prepare LEA personnel to undertake implementation, or actual use of the innovation in their schools and classrooms. The third stage, assimilation, is the process by which the

Table 1

SUMMARY OF MAJOR CATEGORIES OF NDN DIFFUSION ACTIVITIES

Diffusion Stage/Category of Activities	Nature of Activities
INITIATION	
• Initial Awareness Activities	Facilitator agents use outreach mailings and follow-up contacts to surface potential adopters. Materials mostly limited to brief brochures. Different versions of materials usually sent to different targets (superintendents, principals, teachers, etc).
• Secondary Awareness Activities	Developers coordinate with Facilitators to provide indepth information to potential adopters. Regional and specialized conferencing, education fairs, and demonstrations. Materials more detailed. Visits to Developer site often involved (underwritten by Facilitators).
• Pre-implementation Training	Developers conduct indepth workshops (3-5 days) to prepare key adopter staff to implement. Training often conducted in adopter context. Often adoption agreement required. Training focuses on conceptual basis of innovation. Extensive materials.
IMPLEMENTATION	
• Post-implementation Training	Occasionally in-service training provided to adopters by Developer staff. Assistance in adapting to local setting.
• Follow-up Assistance	Moral support, evaluation assistance, and assessment of implementation conducted by Facilitators and/or Developers.
ASSIMILATION	
• Not part of NDN strategy	Local effects of adoption accrue.

innovation loses its "special project" status and becomes a regular part of the school's organization or curriculum. Only the first two stages, initiation and implementation, require active participation by the NDN.

Survey results indicate the program attained a high degree of success in creating awareness of the NDN programs and services, stimulating interest and activity on the part of school personnel, providing materials and training assistance to adopting schools, and providing subsequent implementation assistance and follow-up support. Program outreach included virtually all public and nonpublic elementary and secondary schools. Approximately 50 percent of these have responded with expressions of interest and requests for further information and materials. During the study year, secondary awareness demonstrations and conferences were provided to over 4,000 participating LEAs, and survey data indicated that in excess of 2,000 of these LEAs had received some form of adoption training, materials, and implementation assistance.

Of the 1,460 LEAs surveyed, over 80 percent claimed to be actually implementing their adopted innovation and were confident that the implementation would lead to assimilation. The pattern of adoptions was reasonably well dispersed both geographically and by innovation type. However, adoptions tended to be concentrated in elementary schools in non-urban school districts.

The investigators' process-outcome analysis identified the following as significant determinants of change agent effectiveness:

(1) Thorough, persistent, and appropriately segmented outreach campaigns, in which varieties of awareness materials and tactics are employed selectively to target audiences within the educational community.

(2) Personal follow-up tactics, either telephone or in-person visits, making extensive use of personal referral networks.

(3) Early involvement of administrative and instructional decision makers within the client schools, particularly for secondary awareness and demonstration activities.

(4) Coordinated awareness conferences in which Developers and Facilitators team up for regional conference activities,

(5) Interpersonal style of the Developer, particularly in terms of client homophily, human relation skills, and leadership style.

(6) Resource-organizational support by Facilitator, primarily in terms of securing administrative concurrence and enabling LEA personnel to visit demonstration sites.

(7) Emphasis on local commitments, such that Developer, Facilitator, and Adopter agree on the specifics of the intended adoption.

(8) LEA visit to demonstration sites, which provide visible models and referents for the adopting LEA.

(9) In-person training of key instructional and administrative staff by the Developer, often involving extensive on-site assistance.

(10) Focus on the "spirit" of the innovation, as opposed to form, structure, or mechanics.

(11) Emphasis on practitioner change, such that the innovation focuses on having the staff improve their own effectiveness, independent of expensive materials or resources.

(12) Well-articulated adoption materials, which amplify training components, are complete, well organized, comprehensive, and detailed.

(13) Phase-in of implementation, beginning with only a few interested and competent staff in a few classrooms or schools, and gradually extending to other elements of the site.

(14) Return visits by both Facilitator and Developer, generally during the implementation year, to assist, evaluate, and reassure, as needed.

In analyzing the overall NDN approach, the investigators suggest the following as the key factors in its effectiveness as a dissemination program:

(1) The requirement of JDRP approval, which supplied a sense of legitimacy, quality control, and special status to the innovations.

(2) The availability of a variety of innovations for any given adopter interest, which provided opportunities for user choice.

(3) Specialization of change agent functions (Facilitator as the change process specialist, Developer as the innovation specialist), which minimized administrator versus practitioner conflicts.

(4) OE's emphasis on goals and maintenance of a low administrative profile, which produced both competition and cooperation among change agents, resulting in high activity levels and a considerable sense of esprit.

The investigators concluded that the NDN represents one of the few highly successful federal efforts to make wide-scale use of important developmental improvements in educational state-of-the-art. The approach was judged politically viable and contrary to findings from evaluation of less structured change efforts (i.e., the Rand change agent study), appeared to produce sustained effects at very low perceived local costs. Nine out of ten NDN adopters surveyed reported that their adoptions address important, locally recognized needs; are working well; cost their district less than $2,000; and represent a clear improvement over previous practices. LEA satisfaction with adoptions is further evidenced in local personnel's advocacy of their projects to other school people. The NDN evaluators concluded that enthusiastic, experienced users become the best salespersons for the innovations.

5. THE TAG STUDY

The Study of Assistance Strategies of Six Groups that Facilitate Educational Change at the School/Community Level differs from the preceding studies in several respects. First, this study did not examine a particular federal dissemination effort per se but a broad variety of existing efforts (referred to by the investigators as Technical Assistance Groups, or TAGs), of various size and scope, to change education. These TAGs varied from privately endowed efforts which operate on a national scale (IDEA) to community-based efforts to accomplish reform of local schools (United Bronx Parents). Second, the TAG study, although the least empirical of the five synthesized here, provides perhaps the richest source of descriptive detail regarding organizational, operational, and technical aspects of school change projects. It consists of a collection of six in-depth case studies conducted within a one-school-year period. Third, the focus of the TAG study is on the change agent groups: their philosophy, organizational evolution, staff roles and training, general modus operandi, and patterns of impacts. The study views impacts from the TAG's perspective, rather than

that of the client (called the Receiver of Technical Assistance, or RTA). Fourth, from these six TAG case studies, a vast array of generalizations are advanced regarding the nature of school/community change, effective TAG organization and operations, and recommendations for further improvements and refinements.

Assumptions

The basic assumptions guiding the TAG study approach are made explicit in the case history volume (Volume I). Specifically, the investigators adopted a social systems view of schools. They view schools as loosely coupled organizations, interdependent with other systems (with whom "organizational coalitions" are formed), and characterized by multiple, unclear goals. Furthermore, they argue that schools are best analyzed in terms of concepts such as roles, norms, functional subsystems, routines, decision rules, and standard operating procedures. They assume that personal contact is the key influence in the adoption/implementation process, and that adaptation of innovations to local needs is critical to effective implementation. Interestingly, then, the TAG investigators postulate as their key assumptions precisely those findings and interpretations advanced by the preceding studies.

Study Methodology

Consistent with their assumptions regarding schools and school change, the investigators concentrated on examining established school change operations in order to develop further evidence and understanding of the process and effective strategies. They selected for their study TAGs which: (1) emphasized personal intervention tactics; (2) focused on changing the social structure as well as the curriculum of the school; (3) had articulated their long-term strategies; (4) had an integrated view of the school community and

attended to all components; and (5) attended to local feedback and adapted (or evolved) their strategies accordingly. The six TAGs participating in the investigation are described by the authors as follows:

> AFRAM Associates (AFRAM). A Harlem-based group that has provided assistance to parents at eight Follow-Through Program sites, in four states and Washington, D.C. AFRAM attempts to help parents become full partners in their children's education in terms of decision-making and day-to-day involvement in schools.
>
> Center for New Schools (CNS). A group that has attempted a variety of assistance strategies for changing urban schools, with an emphasis on using qualitative research studies of successful change efforts as a source of information for assistance.
>
> Creative Teaching Workshop/Experiential Systems, Inc. (CTW). An advisory group working with teachers and principals in several New York public schools with a focus on using concepts and techniques of direct experiential learning with both children and adults.
>
> Institute for the Development of Education Activities, Inc. (/I/D/E/A/). A group of educators who have developed Individually Guided Education (IGE). IGE is an approach to individualizing student learning programs that entails a changed approach to planning and carrying out instruction, on-going staff development, and social reorganization of the teaching staff. Having developed the change strategy and related materials, /I/D/E/A/ staff have trained staff from Intermediate Agencies such as state departments of education to provide on-going assistance for carrying out the IGE program in over 1200 schools.
>
> Rural Education Program (REP). A group developing a strategy for assisting rural schools and communities to carry out a systematic problem-solving process to deal with priority local school problems. REP is currently field-testing their approach through training and supporting local facilitators working in two rural school districts and is developing training and support mechanisms within state and intermediate education agencies to assist the change process at the local level.
>
> United Bronx Parents (UBP). A group of parent activists in the South Bronx section of New York City who assist local parent groups in the area to increase their influence in local schools through training, acting as advocates for individual students, and community organizing. (Moore et al., 1977, Volume I, pp. 2-3).

These six TAGs represent an unusually broad spectrum of philosophical, political, and curriculum orientations regarding the nature, locus, and strategy for effecting school change.

Findings

The major findings reported in the cross-site analysis are remarkably similar to the criteria along which TAGs were selected for study. Specifically, the investigators conclude that the most effective TAGs:

a) Have well-articulated delineations of their basic goals and philosophy. The successful TAGs began with a strong or prominent leader with a distinct philosophy of school change. This philosophy was in line with some ideology or tradition of change goals--to make schools more responsive to community interests, to purge schools of organizational inefficiencies, to reform curriculum and instructional practices radically, and so on. Basically, the explication of goals and philosophy is believed to lead to the change strategy.

b) Have developed and refined their strategy based on practical experience. The investigators report that regardless of goals and philosophy, the early experiences of TAGs were relatively confused and characterized by much trial and error behavior. The early priorities generally were in the areas of securing financial support, generating a coherent and compatible support staff, creating an identity, and discovering and refining practical tactics.

c) Use a process of socialization and apprenticeship in training additional staff. The details of this "socialization" training process are not well described, but the investigators imply that more emphasis is given to selection components than to actual training. The process generally requires from two to three years for an "acceptable" candidate, and involves role modeling and field experience. The TAG leaders apparently seek staff who above

all else are ideologically compatible with their goals and philosophy. The investigators stress the notion of a "family" operation.

d) Deal with schools and communities from the social systems perspective. The TAG tactics involve differentiation of target groups and interfacing with schools in terms of power and decision-making structures. TAG staff attempt to identify and make use of informal social networks in the school community.

e) Emphasize acquisition, mastery, and consistent use of the client's language. Effective TAGs attempt to minimize their own jargon, except for terms created around specific components of their change goals. They require internally consistent use of client language and concepts by all of their staff.

f) Codify aspects of their strategy for internal communication and administration. Roles and functions are clarified and codified. This codification is defined by the leader and is used for internal management and control only.

g) Develop and utilize materials to elaborate and support implementation of their assistance strategies. Materials are differentiated by stages of intervention (initial awareness, secondary awareness/consciousness raising, and comprehensive implementation) and are reported to be of high technical quality. TAGs without comprehensive materials have extremely limited success.

h) Make use of research findings and self-evaluations to improve the effectiveness of their operations. However, only findings or feedback that correspond to their <u>own</u> observations and intentions are accepted. They dismiss or ignore counter-intuitive evidence.

In addition to these generalizations of effective TAGs offered by the investigators, a great number of insights are available from this study. For example, virtually all of these TAGs make use of personal referral networks in soliciting clients. Also, although the investigators do not dwell on them, the TAGs have experienced a great number of problems, difficulties, and failures in their efforts. In most instances, these problems and failures are quite predictable, particularly from the social-organization perspective the investigators employed.

Some problems, however, exist regarding generalization of findings based on comparisons of so few approaches (or cases), which differ so radically in change goals and philosophy, organization, and operations. For example, IDEA and REP operate within national organizations with several administrative tiers between the "leader" and the change facilitators, whereas other TAGs operate on local or community levels and consist of small, relatively manageable staffs. Issues of prestige or national recognition may have confounded apparent impacts in differentially enhancing the legitimacy of these TAGs. Also, some may question the appropriateness of grouping together a political subgroup such as UBP with an R&D regional lab program such as REP. Indeed, the CNS became a house divided over the issue of whether it could be studied as a TAG.

In sum, the value of the TAG study to this synthesis rests more in the wealth of detail contained in the case studies than in the general conclusions. These conclusions are wholly consistent with the findings from the other major studies. Still, they are expressed at a level of generality which corroborates more than amplifies. We would strongly advise those planning to provide or currently providing change-oriented assistance to read the six TAG case studies.

Summary

The major features of the dissemination programs, assumptions, and study methodology, as well as highlights of findings, for each of the five investigations included in this synthesis are summarized in Table 2. The reader is cautioned that the material presented in this table oversimplifies the actual programs and corresponding study findings. The purpose of the table is to provide a thumbnail reference for subsequent issue synthesis and discussion.

Table 2

SUMMARY OF STUDY FACTS

STUDY	BRIEF DESCRIPTION OF PROGRAM UNDER INVESTIGATION	KEY PROGRAM ASSUMPTIONS*	BASIC STUDY METHODOLOGY
IEBER: PILOT STATE DISSEMINATION PROJECT	Seven Educational Extension Agents worked in LEAs within three states to link school personnel with ERIC-type resource bases. (2-year-study)	Schools need assistance in identifying needs and in locating resources to meet their needs. Intermediaries are necessary to link school personnel to resources bases (ERIC). Successful linkage will result in further knowledge utilization and further subsequent use of the resource base.	Extended field observation of linker and information retrieval operations within each state. Event-linked survey of LEA clients and responses to client requests. Limited statistical analysis of survey data. Case study and descriptive analysis of field observation data.
AND: EVALUATION OF FEDERAL CHANGE AGENT	Four categorial programs (ESEA III, VII, Vocational Education and Right-to-Read) provided grants to LEAs to stimulate innovation and change. (3-year-study)	Schools lack necessary slack resources to deal with program deficits and improvement needs. Federal "seed money" grants will stimulate problem solving behavior, R&D products and services, especially the use of successful practices and innovations will be continued after withdrawal of federal support.	Phase I: in-person questionnaire survey of grant recipients at 293 LEAs, followed by in-depth study of 25 sites. Regression analysis of survey data, coupled with qualitative analysis and synthesis of case study data. Phase II: follow-up visits to 100 Title III sites and 11 Title VII sites.
IP: EVALUTION OF TRYOUT FIELD TEST	Six exemplary projects in reading and math were packaged for replication. 19 tryout sites received grants to replicate the projects on the basis of packaged materials alone. (2-year-study)	Schools are anxious to replace ineffective practices, can assess their needs and interests against available projects and make appropriate selections, that essential features of effective projects can be described by materials, that required staff exist in LEAs, that project replication will result in impact replication, and that PIPs will become cost effective by reducing implication time, costs and uncertainty.	Intensive survey of teachers, administrators, parents and pupils at end of years 1 and 2. Detailed observation and interview of staff and project operations (training, start-up, operations) years 1 and 2. Discrepancy analysis of implementations. Norm-referenced and curriculum referenced analyses of pupil learning. Qualitative analysis and synthesis of pupil affect, parent, teacher, and administrator survey measures and case studies.
ON: EVALUATION OF NATIONAL DIFFUSION NETWORK	Discretionary grants were provided to developers of exemplary innovations to support demonstration sites and related dissemination activities. Grants were also provided to state and regional intermediaries to facilitate the diffusion and adoption of Developer projects. A national "Network" was created. (1-year study)	A configurational approach involving interpersonal transactions, on-site assistance and coordination among two types of intermediaries (Developers and Facilitators) is required for widespread adoption of program improvements. Both materials and in-person assistance are needed. The Developer is the best implementation assistant, LEAs should be offered choice from an array of "validated" projects, and secondary spread will occur for well rooted adoptions.	Baseline survey of 1,306 client LEAs and an overlapping year-end survey of 1,460 clients to assess initiation, implementation and continuation processes and events. Extensive survey of all change agents. Case studies of 32 change agents and 35 adopters. Case studies of conferences, training, and teacher assistance components. Multiple regression and qualitative analysis and synthesis of data.
CASE STUDIES STRATEGIES	Six "successful" educational change (technnical assistance) projects were studied in depth to identify common and unique features of their assistance strategies. (1-year-study)	School change must be viewed from a social systems perspective in terms of roles, norms, functional subsystems, routines, decision rules and standard operating procedures. Personal contact is the key influence in the adoption/implementation process, and mutual adaptation is required.	In-depth six-week case study of each of the six TACs.

Table 2, concluded

STUDY	KEY FINDINGS
SIEBER: PILOT STATE DISSEMINATION PROJECT	Field agents achieved a substantial impact in terms of increasing school personnel's use of external information resources. Impact of the information on school/classroom practices is uncertain. Factors contributing to agents' success were: (1) their status as generalists; (2) their position outside the target systems; (3) their lack of power to mandate change. Major problem areas were: (1) agents' underinvolvement in local change efforts; and (2) internal management of the state-level projects.
RAND: EVALUATION OF FEDERAL CHANGE AGENT PROGRAMS	Federal seed money programs stimulated initiation of a large number of local efforts consistent with program guidelines. Success of implementation was due mainly to local considerations, including: (1) motivation for initiation; (2) scope of change attempted; (3) implementation strategy; (4) level of institutional support. Continuation of programs after the withdrawal of federal money occurred at the classroom and/or the district level. Full institutionalization (long-term survival of the programs) was found in very few districts.
PIP: EVALUATION OF TRYOUT FIELD TEST	The six Project Information Packages tested were effective devices for communicating management aspects of projects that make use of straightforward commercial materials and familiar instructional techniques. However, structural replication of the management features of an effective project did not guarantee replication of the original instructional program or of the student achievement gains realized at the original site.
NDN: EVALUATION OF NATIONAL DIFFUSION NETWORK	The approach appears highly effective in creating LEA awareness, interest, and subsequent implementation of innovations being diffused. Factors accounting for successful adoptions were: (1) thorough, persistent, and well-differentiated awareness activities; (2) early involvement of administrative and instructional decision makers and emphasis on local commitment; (3) extensive use of in-person tactics at all stages of the adoption process, including follow-up visits; (4) provision of comprehensive and well-developed materials to support adoptions; (5) personal dynamics of the Developer and management skills of the Facilitator; (6) Emphasis on practitioner change, phase-in of implementation, and low reliance on expensive resources (7) support of LEA visits to demonstration sites. Adoption patterns appeared reasonably uniform by innovation type and geographic area, but disproportionate in terms of school level and district urbanism. Much of the overall NDN success is attributed to effort and enthusiasm of participating change agents.
TAG: CASE STUDIES OF STRATEGIES	Major conclusions are that successful TAGs: (1) consist of small, cohesive staff; (2) developed stylized approaches on trial-and-error basis over a period of years (generally 6 or more); (3) interact with schools as social systems; (4) develop and make use of extensive materials; (5) learn and make use of client language when providing assistance; (6) continually revise and adapt their assistance tactics on the basis of experience. The typical successful TAG is described as a "family" operation with the parent (leader) having ultimate authority. Staff roles and functions are clarified and codified. New staff are selected and socialized into the TAG, generally requiring 2-3 years.

III. CROSS-STUDY ISSUE SYNTHESIS

Each of the studies included in this synthesis began with somewhat different assumptions of how the dissemination of knowledge should relate to or affect subsequent change at the school level. The extent to which these key assumptions have been articulated varies considerably, with the PIP program having the most explicit set and the Federal Change Agent programs perhaps the least explicit set. Interestingly, although the influence of models such as the Innovation/Diffusion Model (Rogers) or the RDDA or Market Model (Havelock, Hood) clearly is seen to differ across programs, none of these major programs exactly corresponds to any single model of dissemination and change prevalent at the time of the study. In our opinion, the important point is that regardless of their initial theoretical orientation, the studies reach consensus on a number of conclusions regarding the relationship between dissemination and change. These conclusions are synthesized below, and some implications are discussed briefly.

1. Information alone will not likely affect much "change-oriented" utilization. Regardless of the level, sophistication, or accessibility of information, all the studies show that other components are needed to effect and sustain actual change. Sieber argues that there are many uses of information that would not be expected to result in observable change (e.g., satisfying one's intellectual curiosity, supporting a current position, or simply keeping oneself informed). Still, if the goal is to induce change, something besides an information network or resource system

(e.g., ERIC) is necessary. As we will show below, this assertion does not negate the value of printed information. However, it is clear from all five studies that more than information is required to effect change and that different kinds, levels, and modes of information become relevant at different stages of the change process.

The PIP study, which was the most sophisticated investigation of the functions of information in supporting planned change, concludes that even within highly motivated contexts (i.e., those in which clients are given strong incentives to implement and sustain a new practice), at least some in-person intervention is needed. Generalizations from the PIP study, in which the power of information alone seemed substantial, should be made with great caution. The conditions under which PIPs were investigated were extreme and atypical (i.e., large compliance-contingent grants and the continual presence of an external evaluator), and findings cannot be generalized to more "natural" settings.*

At the opposite extreme, examples from both the Rand and the TAG studies indicate that some level of easily accessible and assimilated information may be vital to a change program. From the Rand study, we conclude that in the absence of information to guide behavior, the provision of financial resources will have a marginal and dubious effect on change. "Seed money" does not necessarily "unfreeze" the system and produce a lot of information-seeking behavior, although it may if information-seeking "strings" are attached to the money. In the case of TAG, we similarly conclude that to the extent

*A study of PIPs under more "natural" conditions, including access to technical assistants and "experts" and freedom to make local adaptations, is nearing completion and should provide better evidence on these points.

assumptions, requirements, and procedures involved in a given change program are not codified, articulated, and made available to clients, the effort will tend to fail.

The Sieber study, which focused less on the change consequences of information than on the ability of change agents to stimulate information-seeking behavior among school personnel, still concludes that the process is not self-starting and probably not self-sustaining. In subsequent publications, Sieber (1974) and Louis (1977) concur that some intervention in the form of personalized assistance (from an intermediary or an extension agent) is probably required to get school practitioners even to attend to the information. Similarly, the NDN study found not only that some personal intervention is necessary to initiate information utilization, but that qualitative differences in the mode and message are appropriate at different levels of the educational bureaucracy and at different stages of the change process.

The evidence from these studies indicates that information--in the form of reports, descriptions, comprehensive packages (or whatever)--seems to constitute a necessary, but not sufficient, condition for initiating "change-oriented" utilization in schools. This assertion has implications for the manner in which ERIC-type resource programs should be supported. We would agree with Sieber that the ERIC system ought never be expected to influence LEAs heavily in the absence of intermediaries but that it should be maintained and improved, perhaps with parallel systems for different target audiences. Four such audiences which immediately come to mind are teachers, administrators, intermediaries, and the research/scientific community. These parallel resource bases should be cross referenced so that the user has access to all versions of a given item.

2. The quality and availibility of materials play a central role in supporting and maintaining dissemination effects. This generalization does not contradict the previous assertion that information, by itself, is not sufficient to produce utilization. Rather, it asserts that qualitative aspects of materials profoundly influence patterns of utilization and that materials constitute a necessary component of any serious dissemination program. The mere provision of information resources and materials constitutes a poor dissemination strategy, especially if the objective is utilization. However, the opposite appears equally true: An interventionist or change advocate will have little success in effecting utilization and change without supporting materials.

Support for this assertion comes primarily from the NDN and TAG studies. Efforts of change agents tended to be successful in direct proportion to the quality and sufficiency of materials they provided to their clients. In the NDN, much emphasis has been placed on preparing and supplying detailed materials to potential clients. These materials are differentiated by audience and by stage of the change process. Independent of the nature of the change agent or the innovation, dissemination effectiveness as measured by adoption successes increased as materials became more refined and were differentiated into separate sets for administrators, instructors, aides, parents, etc. Conversely, efforts to induce utilization or change generally failed if supporting materials were low quality, difficult to obtain, or simply nonexistent.

The TAG study further amplifies the relationship of materials to utilization consequences. In terms of demand and demonstrated effects on utilization and change outcomes, the most successful TAG had the most comprehensive and sophisticated materials support system. This TAG

combined the use of intermediaries trained to introduce the innovation with an elaborate package of materials, which addressed all aspects of utilization (initiation, implementation, administration, evaluation, housekeeping, general philosophy, alternative support systems and resources, etc.). Although the study suggests that characteristics of the intermediaries also influenced the effectiveness of this TAG, comparison across the TAG case studies shows convincingly the crucial role of materials. The TAG which used the most person-intensive assistance strategy but had neglected development of supporting materials was relatively unsuccessful. TAGS advocating extreme or radical innovations tended to achieve success to the extent they developed and provided a continual supply of materials to support their interventions.

The PIP study further corroborates this interpretation of the central support role of materials. Of the six PIP projects, only one had completely articulated curriculum materials. This was the most successfully implemented project. The relationship of completeness of materials to both implementation success and project effectiveness was again direct and linear. Finally, the Rand study, although viewing prepackaged "kits" with skepticism, does conclude that the role of materials support is critical for implementation and continuation of the innovations.

The implications of this pattern of findings seem fairly straightforward. Although written information will not by itself induce much change, the success of efforts to disseminate new ideas or practices will depend to a large extent on the quality and availability of rather thorough documentation and support materials. The program advocate, linker, or intermediary needs hard copy to back up his/her ideas. All the studies show that the more complete, sophisticated, and well targeted these materials

become, the more likely they will effect and sustain the intended utilization. There is strong evidence, then, for a materials/in-person interaction model of dissemination effectiveness. To the extent either is missing, the dissemination effort will result in underutilization.

3. Utilization seems to require more than easy access to information and resources. Evidence from the five studies suggests that dissemination systems designed around the notion that schools behave as rational, information-seeking consumers will have very limited success. Two studies in particular call such a "marketing" approach into question: the Pilot State Dissemination Project (Sieber) and the Federal Change Agent Study (Rand). It might be argued that the current systems simply lack the necessary components, and that once these are supplied a "marketing" model will appear more viable. However, the favorable evidence for approaches based on alternative models, coupled with the Sieber and Rand evidence, leads us to discard a conventional marketing approach as unproductive. This certainly does not mean that the support elements making up such as approach (e.g., ERIC) should be abandoned, but it suggests that serious efforts to produce improvement-oriented change in schools will require more than the esistence and availability of information and resources.

The Sieber study has shown that the presence of a particular kind of intermediary--namely the generalist with a strong school background--will result in the increased use of available information resources by school people. Although Sieber concludes that this information has, in some instances, led to efforts to change on the part of the users, his evidence is weak or nonexistent. The real contribution of the PSDP study was in pointing out the complex, loosely-coupled, insulated nature of educational institutions, and in suggesting some of the requirements and limitations of intervention effectiveness.

Similarly, one cannot escape the implications of the Rand findings regarding the effects of massive infusion of seed money grants to assist schools in improvement-oriented change. One underlying assumption of these grant programs was that because schools lacked slack resources, they had little opportunity to innovate or make use of resource systems to discover and adopt innovations of others. The first part of this assumption seems true: Schools lack "investment capital" or slack resources (probably by definition). The implied solution to this situation, however, does not follow: Provision of such resources does not (or did not, as Rand found) generally lead to intended consequences.

4. Interpersonal or social influences appear to be the prime determinants of utilization. A very complex picture of schools and how they interact with external human or information resources emerges from the five studies. First, they are not active, but reactive. Schools operate as loosely-coupled social bureaucracies. As such, their method of operation is "status quo" unless externally imposed incentives and resources impinge on them. They are not striving, "success oriented," continually improving, self-organizing systems. They are, in short, public institutions with all the bureaucratic inflexibility and indifference seen in such institutions (libraries, welfare agencies, public health agencies, local administrative agencies such as the Department of Motor Vehicles, and so on).

Moreover, school systems differ enormously in character and organizational complexity both within (elementary versus secondary) and between (urban versus suburban versus rural) themselves. Countervailing trends coexist (decentralized versus centralized decision-making and governance; expanded curriculum versus return to basics, etc.), and authority alliances

are ambiguous and diffuse (teacher organizations compete with administrative authority for control over teachers). Teachers are insulated from any direct external intervention by virtue of their institutional structure; hence classroom practices are virtually beyond formal control from all those outside the institution including parents, and from most of those within the institution, particularly above the level of department head or building principal. In a sense, schools present an enigma--they are almost totally beyond either external or internal control at the basic operating level (instruction) and thus are exceedingly difficult to change toward specific ends, particularly from the outside.

With this observation of the organizational disenfranchisement of practitioners and the virtual absence of internal incentives and sanctions for individual initiative, it is easy to understand the frustration Sieber's extension agents experienced (according to his report) as they tried to help put school staff in touch with information resources. Similarly, Rand's conclusion that the majority of school systems responded "opportunistically" to seed money seems a bit harsh. In fact, schools responded in a predictable and organizationally logical fashion, minimizing bureaucratic costs of change (which Pincus [1974] has argued are the real costs for bureaus) and applying the resources to shore up weaknesses in the existing operation such as employment, bricks and mortar, etc. Thus, they may not have operated out of active opportunism, but responsively, to fill institutional needs they perceived as most urgent and relevant.

Furthermore, as we would predict, the schools that did follow a "problem-solving" strategy did so in response to individual initiative. Make no mistake, the types of individuals taking this problem-solving initiative are not typical of current school staff--administrative,

central office, or instructional. As the study of NDN Developers* showed, these "problems solvers" were strong and enthusiastic leaders, striving entrepreneurs whose ambitions in all probability would have led them out of the teaching profession had not the seed money programs been introduced.

From Rand's study we estimate that the proportion of such exceptional staff is quite low. For this reason, any program which depends solely on local initiative for its success is likely to fail. Furthermore, we reason that lowering the "costs" to local staff in terms of time, effort, and accessibility is only a partial solution to the problem of underutilization. Incentives and sanctions must also be introduced to overcome "status quo" inertia. We believe that the presence of Sieber's extension agents and their low-profile, nonthreatening, continuous interactions with their clients generated the incentives for utilization. Recall also that Sieber's agents had to demonstrate their awareness of "unique" local conditions before they had any influence over staff utilizations. Our central thesis is that the knowledge utilization behavior evident in Sieber's study was initiated primarily from incentives created by the extension agents' social interactions with the local staff.

This thesis is supported, if not validated, by virtually every other study included in this synthesis.** The PIP projects were initiated by externally imposed sanctions and incentives, and even though the projects were fairly well implemented, the PIP staffs still required interactions with experienced peers from other sites for reassurance. Both the NDN and

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*NDN Developers studied were, for the most part, practitioners who had developed an innovation by means of a grant from one or another federal seed money project. Hence, they were the Rand "problem solvers."

**Our own in-depth studies of local changes also support this thesis. See Emrick and Peterson, 1977.

TAG studies cite the charisma and enthusiastic leadership of the program advocate as the "force" or incentive source that initiates local involvement and creates pressure to participate. These interventionists are not pied pipers; they are capable individuals who are able to establish strong sharing relationships with local staff. As with Sieber's intermediaries, they act to raise the consciousness of their clients and provide both role models and pressures to conform. They appeal initially to a limited subset of any given faculty, most often those who have an interest in professional development or in exploring alternatives.

Rather than altruism or vocational dedication, mutual self-interest seems to dominate the process. The interventionists expend energy and resources competing for clients, and often must focus on only a few of many opportunities. Similarly, local staff resist changing in any substantial way what they are already routinely doing. Change requires work, involves risks, and seldom offers clear and immediate advantages. Both the agent and the client must be satisfied that their interests are protected before the change process commences, whether that process is utilization of a resource system or adoption of an open education curriculum.

5. Qualitative more than tactical aspects will determine the effects of a dissemination strategy. All five studies allude to this conclusion, each in its own way. Regardless of the objectives of the dissemination effort, qualitative rather than tactical issues seem to dominate explanations of effectiveness. In other words, what is done and when it is done do not appear nearly as important as who does it, and how it is done. This may, of course, be a limitation of our current ability to conceptualize

and identify subtle tactics, but we doubt it. Moreover, both organizational and psychosocial analyses of the phenomenon support the qualitative interpretation.

Perhaps the best evidence for this assertion is found with the PIP study. Virtually every step in the initiation, training, and implementation stages of the packaged projects was prescribed in detail for the school staff. The PIP model assumed that structural replication of an effective project in a new setting would render it similarly effective. The study found, however, that effectiveness seemed unrelated to structural replication--it was the interpersonal and instructional style of the staff that accounted for differences in effectiveness. Most likely, good staff will make any new project appear effective.

The Sieber study makes much of an apparent superiority of "generalists" over "specialists" in dealing effectively with local school staff and ultimately inducing them to make use of information resources. Subsequent and closer inspection (Louis, 1977) reveals that the difference in functional effectiveness of these intermediary types was more in terms of human relations skills and organizational attachments than in knowledge or expertise. Louis attempts to formalize these distinctions in terms of concepts such as social distance, intensity of change agent involvement, and expertise needed and provided.

It seems clear then that qualitative attributes of the intermediary are far more important than technical or organizational attributes. Both the NDN and the TAG studies conclude that the program advocate's knowledge and enthusiasm, coupled with his or her awareness of school conditions, produce successful initiation of the change program. The failure of many

of the changes initiated through the Federal change (seed money) programs to be sustained, as documented by Rand, may be explained by the absence of some appropriate intermediary or interventionist. These findings fit well with Louis' analysis of intervention effectiveness.

All the studies invoke a concept of local commitment as the single most powerful explanatory variable of outcomes. Furthermore, the studies indicate that local commitment does not emerge spontaneously, nor is it diffuse throughout the client system. Evidence of successful intervention points to the cultivation of a single individual--or a small group of key staff--who serves as the focus for subsequent social interactions. Occasionally these primary contacts are not the true opinion leaders of the client group; in such cases, efforts to involve the latter group become critical.

A number of components appear to be instrumental in the development and cultivation of local commitment. Constructs such as "ownership," "involvement," "growth experience," and "problem-solving" are offered to explain its emergence. Also, the provision of "choice" and "decision involvement" seems to increase local commitment substantially. Overall, it appears that the development of local commitment is dominated by <u>personal</u> issues, such as the human relations ability and interpersonal style of the intermediary. Following this come professional and technical issues (e.g., appeals to the client's sense of professionalism or to the "clear" advantages the utilization may offer). The least important issues in developing local commitment seem to be institutional (e.g., compliance with a mandated program or with the district's current priorities).

Another generalization which seems to hold regardless of dissemination objectives regards the training of intermediaries (or "facilitators" or "linkers"). Effective training procedures or components are not described in detail in any of the current studies. It appears, however, that this training resembles a socialization process more than a cognitive learning regimen. At least some skill development and refinement is attempted, but on the whole, "training" of intermediaries often appears to consist of selection and socialization (of values, philosophy, style, etc.) processes, primarily through role models, demonstrations, and guided or over-the-shoulder experiences.

Another training component involves the interactions of the intermediary with the client. This type of training again rarely appears as simple skill development, but often takes the form of consciousness raising, or highly charged supportive-persuasive seminars which create enthusiasm and commitment. The PIP, TAG, and NDN studies all indicate that the early use of tangible activities has positive consequences. Perhaps the involvement of clients in a concrete experience is what is critical, since the apparent relevance of the training activity to the intended utilization is often marginal. Accordingly, we believe that training of clients functions primarily to create and sustain motivation to utilize, and that materials serve to support the actual technical learning involved in utilization. It does not seem to matter much how this training is structured or how it is sequenced. What seems more critical is the fairly continuous involvement and interaction of the client with the intermediary in "utilization-related" activities.

Finally, all the studies indicate that the utilization phenomenon is gradual but cumulative, and that little can be gained by attempting to accelerate the process. The PIP program attempted to reduce the orientation/preparation/implementation period from the normal two or three years to six months. This effort was unsuccessful; it took the better part of two years before the projects stabilized. Typically only a few members of the client system are initial utilizers, and they become the models for subsequent staff utilization. The effective intermediary facilitates this process, and the materials are the fundamental resource for the technology transfer. To the extent the utilization offers advantages (apparent or real) to the users, the process will be sustained. In time, it will become a stable component of the institutional fabric.

IV. CONCLUSIONS AND IMPLICATIONS

Two key conclusions emerge from this synthesis:

(1) Some form of personal intermediary or linkage is essential to the process; and

(2) A relatively comprehensive yet flexible external system is needed to support the utilization and change process through provision of materials and in-person assistance.

As noted in the Introduction, we have assumed that the three primary audiences for this report are researchers, administrators, and policy-makers involved in educational dissemination programs. Accordingly, in this final section we examine some implications of these conclusions for each of these audiences.

Policy

Two major policy implications were suggested:

(1) The time required and resources needed to accomplish wide-scale dissemination and utilization of relevant new knowledge are much greater than are usually allowed;

(2) There is a resulting need for some central process whereby the relevance of new knowledge can be established, its utilization priorities set, and the level of dissemination support determined.

It is clear that educational dissemination is a more complex and costly undertaking than many federal planners had anticipated, particularly when dissemination is expected to lead to <u>change</u> in the practice of education. This synthesis has pointed out the socio/political/institutional nature of schools, and the time and effort apparently required to effect utilization of new knowledge when change is involved. For both technical

(content) and institutional (social) reasons, the organization of school bureaucracies offers little advantage to the dissemination process. Top-down strategies consistently fail, and direct infusion of capacity-building resources (seed money grants) has unpredictable consequences. On the other hand, strategies involving well-informed intermediaries with access to relevant resources (technical assistance, materials, and perhaps some enabling funds) have highly predictable and usually quite strong consequences.

Whether or not policymakers choose to make explicit their dissemination priorities, decisions as to what new knowledge to include in any dissemination system will be required. Their decisions will serve to establish such priorities. On the other hand, conscious and deliberate establishment of dissemination priorities would be expected to exert a direct influence on intermediaries and on subsequent patterns of dissemination and utilization. Although clients (schools) require opportunities for choice, they seek and respond to priorities set at higher levels of institutional authority.

Another implication for state and federal dissemination policy regards the establishment of a system of intermediaries or knowledge linkers. Such a linker-based knowledge dissemination system may have much in common with the USDA Extension Agent system, but because of differences in several key parameters (school organizations versus farmers; the nature of educational versus agricultural knowledge being disseminated and requirements for utilization; the nature of impacts and evidence), it is probably unwise to emphasize this analogy. Most likely, the value of the agricultural extension model will be in the organization of intermediaries within an overall dissemination system. Recommendations for the design of such a system are beyond the scope of this report but could well be informed by this synthesis.

Administration

Three key implications for administration and management of dissemination/utilization programs and components were indicated by the synthesis:

(1) Effective operations seem to depend on a balance between size and organizational complexity;

(2) There are special selection and support requirements for successful intermediary operations; and

(3) Sophistication in materials development may represent a critical skill in effective intermediary programs.

With regard to the first issue--size and complexity of effective programs--the synthesis seems to indicate that small is better. In fact, the limits of effective operations may be as few as ten staff. Furthermore, organizational diversification or departmentalization of staff seems somewhat counterproductive. This phenomenon was most evident in analysis of certain TAG and NDN activities in which large staffs were organized into nonoverlapping functions (e.g., development versus deployment versus evaluation). Such role distinctions apparently led to discontinuities and overspecialization such that field intermediaries experienced problems in relating to clients. Intermediaries became overly specialized and isolated from their colleagues; they also experienced considerable difficulty in adapting to varying client interests and priorities.

On the other hand, projects in which all staff members were involved in all aspects of operations (even though they may have specialized in a particular area) were highly successful. The staffing phenomenon seems to be a process of socialization and role negotiation. A manager/leader is needed to select compatible staff, to direct their socialization, and to ensure the cohesiveness of the operation. The most effective intermediaries display a sense of identity with their "family" (i.e., their project); we believe that there is a trade-off between family size and the qualities of this socialization.

This analysis leads us to speculate that linkage programs organized at the intermediate agency level will operate more effectively than larger units organized at state or national levels, or small independent operations at district levels. The essential requirement seems to be that, however organized, staff size be conducive to a "family" operation.

Personnel requirements--recruitment, selection, and training of staff--is a more complex issue. Many of the projects included in the NDN and TAG studies reported a certain degree of staff turnover. We suspect that these projects discovered by trial and error how to select and train their staff and how to select out incompatible members. Effective projects operated as highly cohesive teams. To some extent team members were obtained through personal referral networks or by self-selection processes. All seem to have social action orientations plus actual job experience in the client system. It would be interesting to experiment with the introduction and development of a linker training curriculum in institutions of higher education.

Materials development and provision represents a complex and crucial component of an effective linker operation. Materials are needed both to describe the linker services and to present the knowledge to be disseminated to clients. The linker concept certainly offers an exciting potential for retrieving and translating ERIC source material for school users. This implies some sophistication in materials development capability may represent a critical skill in effective intermediary programs. Whether this materials resource can be provided through agencies external to the intermediary project needs to be investigated.

Guidelines for an Effective Dissemination/Utilization Program

In addition to the general issues of program management discussed above, our review of the five studies has identified a number of components that, we conclude, characterize successful approaches to dissemination and change. These components appear to lead to (or to increase the quality of) intended consequences of the programs. Some of these components are better understood or have been more carefully investigated than others. Accordingly, many of the "recommendations" for dissemination programs offered below are propositions for further investigations.

To be maximally effective, a dissemination strategy would:

a) Identify and gain access to clients by means of the personal referral networks and informal communication channels existing within the client social system. Although formal dissemination systems (ranging from "top down" campaigns to direct mail, broad outreach tactics) will produce some impacts, they will be spotty and unsystematic and will include a large proportion of false starts. By contrast, the personal referral systems and social networks will provide low-energy access to targets with a much higher rate of intended consequences.

b) Use in-person (preferably face-to-face) communications, with accompanying "hard copy" materials. Both telephone and face-to-face contacts produce much stronger consequences than any other approach. Combining an in-person approach with use of the client referral network will produce an exceptionally high response to the dissemination efforts, and will have the most predictable and controllable consequences in terms of subsequent utilization.

c) Attend to and differentiate the organizational/bureaucratic nature of the client (school) systems. Schools are complex, loosely coupled institutions with few incentives to change. The nature of useful information and assistance will vary considerably from one level in the organizational structure to another.

d) Target the primary level of entry at the organizational level most proximate to the intended locus of impact. Information and assistance intended for teachers should be targeted to teachers--not administrators--and vice versa. Teacher organizations as a point of entry and channel of contact have been generally underutilized.

e) Provide for and secure prior informed concurrence of all administrative levels above the level of primary interface. Informed concurrence often requires only a brief conversation with central, intermediate, and state level administrative officers. If no action or resource provisions on their part are required, and if they stand to benefit (even remotely), concurrence will be easy to obtain. However, if prior concurrence is not obtained, chances for utilization at the target level are remote.

f) Make use of change agents, interventionists, linkers, facilitators, intermediaries, assistance groups, advocates (or whatever their title!) who are most homophilous with the target subculture. Basically, the intermediary must be both familiar and compatible with norms, values, conventions, and social characteristics of the client subculture. Parents work best in effecting parent involvement; teachers identify best with other teachers or those with extensive teaching experience; administrators relate to administrators, etc. It is next to impossible to "fake" homophily. Client attributes, awareness, and sensitivity must be genuine.

g) Ensure that all transactions between the intermediary and the client are coherent and coordinated with the general goals of the dissemination program. The assumption that the target clientele understand problems and shortcomings of a dissemination effort is both false and disastrous in its consequences. The intermediary is an alien to the target social system. It is crucial that the intermediary group have its "act" together, and that all transactions are well coordinated across individual agents. The single most damaging error an intermediary can make is to fail to deliver or to meet a commitment (follow-up contact, delivery, or whatever). Also, all transactions should be fully coordinated with the relevant administrative levels--both in the target organization and in the intermediary organization.

h) Provide opportunities for choice in the content and style of target group involvement. To the extent that clients are offered choices, they will make decisions and thereby increase their level of participation and involvement. The intermediary must be prepared for rejection by one or more target clients.

i) Focus on a limited number of clients, at least 25 percent fewer than can be "comfortably" accommodated at any one time. Overcommitment of intermediaries (or an overly ambitious dissemination program) is a common and serious strategic error. By intentionally "undershooting," the intensity of transactions will increase and the incidence of problems (which spread by word of mouth faster than do successes) will be under more direct control of the intermediary. Maximizing the ratio of successes to involvements will enhance the legitimacy of the effort. Firmly rooting the utilization will generate an advocate of the system--the well-served client.

j) Place early emphasis on the philosophy and ideology of the information, products, or services being disseminated. To the extent that the consciousness of the clients can be raised and the professional and personal advantages identified, a sense of enthusiasm and motivation will emerge among clients.

k) Make early use of concrete experiences, assignments, materials, and utilization-relevant activities. Initial client involvement activities are crucial. Clients will expect directions and expertise from the intermediary. Continued transactions will depend primarily on impressions and level of activity during the initial encounter. Doing something is essential.

l) Provide repeated in-person transactions with the client staff. One-shot or "hit-and-run" transactions will not produce sustained utilization. A distributed program of transactions graduated in terms of the type of utilization involved will be required. The extent and magnitude of this program will, of course, vary in terms of the dissemination program goals.

m) Anticipate that utilizations involving some form of implementation process will be gradual and cumulative. Nearly all studies show that two or more years are required before any new practice or procedure stabilizes. The first year is usually a period of becoming familiar with the mechanics--the "what, when, and how." Subsequent years involve internalization, accommodation, refinement, and further diffusion. The process is slow and requires rather continuous attention and support at the early stages. As the local staff gain experience with new procedures, external support can be withdrawn gradually.

Research

Our synthesis of the five studies suggests the need for further research in three areas related to the design and improvement of dissemination programs:

(1) Improved knowledge of the interpersonal referral networks, subcultures, and decision-making structures characterizing all aspects of American school systems;

(2) More detailed knowledge of the prerequisites, appropriate training procedures, and materials requirements for developing effective intermediaries; and

(3) More definitive evidence of the adoption/utilization process and the range and extent of its consequences on school functioning and effectiveness.

The first of these needs is, in our opinion, the most important, since it is clear that the real nature of school systems is, at best, poorly understood. Only after we can clarify the nature and dynamics of the client system can we design effective interventions. Moreover, we assert as a research proposition that events most crucial to dissemination/utilization success occur at the local, as opposed to central, levels of school bureaucracies.

The tendency has been to view schools as a set of more-or-less identical components operating within more-or-less identical machines (LEAs, IEAs, SEAs). The "system" model has misled us into believing that components are functionally integrated and linearly dependent. A closer inspection shows that this is decidedly not the case. We know precious little about the "true" organizational, social, and political structure of the educational subculture. We know that schools resist change and do not respond either as "rational" entities or as powerless consumers. Without an improved description of the client system, future dissemination programs (and mandated change programs) will continue to function haphazardly.

A second area of needed research involves the selection and training of linkers, and the person/materials balance required for effective linkage. We have concluded that both materials and people are required, but we do not yet understand the interaction surface of these two components--either in terms of knowledge characteristics (the nature of the knowledge being disseminated) or in terms of client characteristics. The NDN study has suggested a few dimensions which might be relevant to the effectiveness of the linkage effort, but even this evidence is too sketchy and rudimentary for practical purposes. Moreover, we still have no definitive explanation as to why urban schools have appeared more resistant than nonurban schools to dissemination efforts.

A third area of needed research pertains to improved documentation of the internal implementation and diffusion events and processes involved in the utilization of disseminated knowledge, and the range and extent of consequences of such utilization. We are aware of no systematic study of the consequences of utilizations on conventional educational outcomes (test scores, pupil growth and development, etc.). Most such evidence is gathered while the innovation is under development, or in the course of systematic evaluations of mandated (but seldom implemented) change. The studies coming closest to addressing the issue of ultimate effects have been themselves quite controversial (e.g., Follow Through, PIP, AIR's Longstep).

Of the five studies included in this synthesis, only the PIP evaluation attended to conventional educational outcomes. The range of outcomes examined in the PIP study included parent, child, and teacher satisfaction with the innovations and standardized achievement test data. None of these really constitutes adequate documentation of educational impacts--attitude

measures are too subject to halo or Hawthorne effects; standarized achievement tests are too narrow, insensitive, and sterile. Finally, the PIP study focused on a limited range of "projects" implemented under atypical conditions.

A few studies have focused on consequences of utilization upon organizational climate (see, e.g., Emrick and Peterson, 1977), and many change agents conduct their own evaluations (e.g., NDN Developers and Facilitators). But this information is largely undeveloped at present. Perhaps it is just as well, given our current meager ability to document and understand such outcomes.

Not only are new indices of utilization impacts needed (such as measures of organizational climate and educational productivity), but systematic studies of the emergence of evidence for such impacts need to be undertaken. The principal investigators of most of the studies reviewed here have argued that evaluations of pupil outcomes and other impacts should be attempted only after utilizations have stablized in their new settings. Evaluations of new projects should focus first on process considerations (e.g., Is the innovation being used at all? If so, how?). Premature impact evaluations are likely to produce negative findings, since change brings disruption. As yet, however, we know relatively little about the patterns by which impacts emerge or the appropriate lag between evaluations of implementation and evaluations of impact.

ADDITIONAL REFERENCES CITED

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